goniochromatic luster pigments based on multiply coated, non-metallic, platelet-shaped substrates that are at least partially transparent to visible light. The pigment comprises a non-metallic substrate, a first coating having a refractive index less than or equal to 1.8, a 2nd reflecting, non-selective or selectively absorbing coating that is partially transparent to visible light and an optional outer protective layer. Schmid was cited for teaching that depending on the composition of the pigment platelets, interference, reflection and absorption phenomena create angle dependent color and lightness effects. The office action states that therefore mode of interaction between the pigment and the substrate onto which it is ultimately coated is a results effective variable.

Claims 9 and 12 were rejected under 35 USC as obvious over Schmid in view of Clark. Schmid ('504) was cited for teaching multiply coated metallic luster pigments that comprise a metallic substrate, a colorless low refractive index coating, a second selectively absorbing high refractive index coating and an optional third selectively absorbing coating of high or low refractive index.

Clark, et al. was cited for teaching a method for coating a metal substrate with a thermosetting powder composition. The powder may be pigmented or clear and is preferably applied over cured electrocoat. The powder coating includes a polymeric resin, a suitable cross-linking agent and a flow control agent. The Clark reference was cited as teaching the addition of a flow control agent for improved film smoothness. It was stated that it would have been obvious to one of ordinary skill in the art to incorporate luster pigment as taught by Schmid into a powder coating as taught by Clark. The office action stated that the motivation to combine the references was the marked improvement in film smoothness and angle dependent color and lightness effects of the resultant film coating that one would expect to gain as a result.

Claims 13 and 14 were rejected under 35 USC §103(a) as being unpatentable over Schmid et al. as modified by Clark et al. as set forth above and further in view of Suzuki et al., Japanese patent no. JP 8268345 (Suzuki). Suzuki was cited for teaching an interference pigment that comprises stainless steel flake coated with titanium dioxide and titanium dioxide hydrate. Suzuki was further cited for teaching that interference pigment can be dispersed into a resin such as an epoxy, polyester or acrylic to form a paint. The office action stated that even though the Suzuki reference discloses only

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coating the substances with a high index material such as titanium dioxide, this does not preclude coating these substrates with lower index materials. It was further stated that Suzuki and Schmid teach the manufacture of similar compounds, namely interference pigments that have metallic luster. The office action concluded that it would have been obvious to use the stainless steel flakes disclosed by Suzuki as the pigment substrate for the metallic luster pigment composition described by Schmid et al. as modified by Clark.

The office action further stated that coating compositions resulting from the combination of Clark and Schmid would inherently meet the CIE Lab color space limitations defined in claim 21.

Applicants submit that claims as amended are patentable over the cited references for the reason that the powder coating of the present invention demonstrates exceptional hiding when applied in a single layer, in contrast to a powder coating containing a mica or aluminum pigment applied in a single layer. This is defined in the amended claims by the ΔL, Δa, and Δb values set forth in amended claims 1 and 33. The conventional powder coatings as described by Clark require application of a color-providing basecoat layer or other coating layer that underlies the film layer of the powder-based coating composition to provide angle dependent color and lightness effects in the coating system. The present invention allows the elimination of color-providing basecoat layer in a coating system, and provides a powder coating that achieves a second color effect different from the color effect of the substrate.

Applicants therefore request consideration and allowance of the amended claims.

Respectfully submitted,

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Claims with Markings to Show Changes

1. (Amended) A coating system comprising:

a substrate having a first color effect; and

a film layer that is at least partially-transparent to visible light and is applied on said substrate for producing a second color effect different from said first color effect of said substrate wherein said film layer is the reaction product of a curable, powder-based coating composition comprising;

a powder-based binder comprising the reaction product of,

a resin having a functional group, and

a cross-linking agent reactive with said functional group of said resin, and

a color effect-providing pigment comprising;

a pigment substrate having first and second substantially parallel and planar surfaces, and

an inorganic coating disposed on at least one of said first and second substantially parallel and planar surfaces of said pigment substrate (B)(I), said inorganic coating (B)(II) having an index of refraction of 1.8 or less,

wherein said inorganic coating (B)(II) and said pigment substrate (B)(I) of said color effect-providing pigment (B) interact with said first color effect of said substrate to produce said second color effect upon application of the film layer of the powder-based coating composition to the substrate, and said inorganic coating and said pigment substrate of said color effect-providing pigment interact with said first color effect of the substrate such

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that said second color effect is different from said first color effect at least by ΔL 20.0, Δa 10.0, and Δb 15.0 as measured according to CIELab color space.

33. A method for coating a substrate, having a first color effect, with a film layer that is at least partially transparent and that produces a second color effect different from the first color effect of the substrate, said method comprising the steps of:

(A) combining a powder-based binder and a color effect-providing pigment to establish a powder-based coating composition wherein;

the powder-based binder comprises the reaction product of;

a resin having a functional group, and

a cross-linking agent reactive with said functional group of said resin; and

the color effect-providing pigment comprises;

a pigment substrate having first and second substantially parallel and planar surfaces, and

an inorganic coating disposed on at least one of said first and second substantially parallel and planar surfaces of said pigment substrate (B)(I), said inorganic coating (B)(II) having an index of refraction of 1.8 or less; and

(B) applying the powder-based coating composition to the substrate to produce the second color effect as a result of an interaction of the inorganic coating and the pigment substrate of the color effect-providing pigment with the first color effect of the substrate, such that said second color effect is different from said first color effect at least by ΔL 20.0, Δa 10.0, and Δb 15.0 as measured according to CIE Lab color space.

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